

Appl. No. 09/683,964
Amtd. dated March 31, 2005
Reply to Office action of January 05, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

5 Claim 1 (Currently Amended): An add-on card for wireless communication capable of being inserted into a personal digital assistant (PDA) comprising:

10 a rectangular housing having an opening formed on an upper side of the rectangular housing;

an interface connector disposed in the opening of the rectangular housing for connecting to the PDA and comprising a DC power terminal for supplying a first direct current (DC);

15 a ~~power-managing circuit electrically connected to the interface connector for storing charges supplied by a first direct current (DC) from the interface connector; and~~

20 a radio-frequency (RF) circuit enclosed in the rectangular housing, the RF circuit electrically connected to the DC power terminal for receiving the first DC and electrically connected to the interface connector for transmitting an RF signal corresponding to an electrical signal from the interface connector or transmitting an electrical signal to the PDA via the interface connector according to a received RF signal;

25 a power-managing circuit electrically connected to the DC power terminal for storing charges supplied by the first DC and electrically connected to the RF circuit for supplying a second DC to the RF circuit; and

~~wherein the power-managing circuit is electrically connected to the RF circuit, and when the RF circuit transmits the RF signal, the power-managing circuit provides a second DC to the RF circuit.~~

wherein when the RF circuit does not transmit the RF signal, the first DC supplies

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desired power of the RF circuit and charges the power-managing circuit simultaneously, and when the RF circuit transmits the RF signal, the power-managing circuit provides the second DC to the RF circuit and the first DC and the second DC flow into the RF circuit simultaneously for providing the desired power of the RF circuit.

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Claim 2 (Original): The add-on card for wireless communication of claim 1 wherein a current flow magnitude of the second DC is larger than a current flow magnitude of the first DC supplied from the interface connector.

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Claim 3 (Original): The add-on card for wireless communication of claim 1 wherein the PDA further comprises:

a battery for supplying power for operating the PDA; and
a touch screen for displaying pictures and accepting inputs by touch.

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Claim 4 (Original): The add-on card for wireless communication of claim 3 wherein the power of the first DC is supplied by the battery.

Claim 5 (Original): The add-on card for wireless communication of claim 1 wherein when

the RF circuit does not transmit the RF signal, the power-managing circuit stops providing the second DC.

Claim 6 (Cancelled)

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Claim 7 (Currently Amended): The add-on card for wireless communication of claim [[6]] 1 wherein the power-managing circuit comprises:

a power-storage unit electrically connected to the DC power terminal for storing the power supplied from the first DC and providing the power to the second

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DC; and

5 a bypass circuit having an input terminal electrically connected to the power-storage unit and an output terminal electrically connected to the DC power terminal and the RF circuit; when the RF circuit does not transmit the RF signal and the first DC supplies the charges, the bypass circuit prevents the current from flowing from the DC power terminal via the output terminal and the input terminal into the power-storage unit, and when the RF circuit transmits the RF signal, the bypass circuit inputs the power supplied from the power-storage unit via the input terminal and outputs the power into the RF circuit via the output terminal.
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15 Claim 8 (Original): The add-on card for wireless communication of claim 7 wherein the bypass circuit comprises a metal-oxide semiconductor (MOS) transistor, a source of the transistor is electrically connected to the input terminal, and a drain of the transistor is electrically connected to the output terminal; when the RF circuit does not transmit the RF signal, a reverse bias between the source and the drain of the transistor prevents the current from flowing from the DC power terminal via the bypass circuit into the power-storage unit, and when the RF circuit transmits the RF signal, a forward bias between the source and the drain of the transistor transmits the power of the power-storage unit.
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25 Claim 9 (Original): The add-on card for wireless communication of claim 7 further comprising a resistor electrically connected to the DC power terminal and the power-storage unit preventing too much current flowing into the power-storage unit leaving insufficient current for the RF circuit.

Claim 10 (Original): The add-on card for wireless communication of claim 7 wherein the power-storage unit is a capacitor.

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Claim 11 (Original): The add-on card for wireless communication of claim 7 wherein the power-storage unit is a rechargeable battery.

5 Claim 12 (Original): The add-on card for wireless communication of claim 1 wherein the interface connector conforms to a compact flash (CF) card specification.

Claim 13 (Currently Amended): An add-on card capable of being inserted into a personal digital assistant (PDA) comprising:

10 an interface connector capable of being inserted into and pulled out of the PDA;
a power-managing circuit electrically connected to the interface connector for storing charges supplied by a first direct current (DC) from the interface connector; and
an operating circuit electrically connected to the interface connector for controlling the add-on card wherein the operating circuit is capable of being operated in a high power consumption mode or a low power consumption mode; and
15 a DC power terminal electrically connected to the power-managing circuit and the operating circuit for supplying the first DC;

wherein the power-managing circuit is electrically connected to the operating circuit, and when the operating circuit operates in the high power consumption mode, the power-managing circuit provides a second DC to the operating circuit, and when the operating circuit operates in the low power consumption mode, the power-managing circuit stops providing the second DC [.] :

20 wherein when the operating circuit operates in a low power consumption mode, the first DC supplies desired power of the operating circuit and charges the power-managing circuit simultaneously, and when the operating circuit operates in a high power consumption mode, the first DC supplied from the DC power terminal of the interface connector and the second DC supplied from the power-managing circuit flow into the operating circuit simultaneously for

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providing the desired power of the operating circuit.

Claim 14 (Original): The add-on card of claim 13 wherein a current flow magnitude of the second DC is larger than a current flow magnitude of the first DC supplied from 5 the interface connector.

Claim 15 (Original): The add-on card of claim 13 wherein the PDA further comprises: a battery for supplying power for operating the PDA; and a touch screen for displaying pictures and receiving inputs by touch.

10 Claim 16 (Currently Amended): The add-on card of claim 15 wherein the charges of the first DC [[is]] are supplied from the battery.

Claim 17 (Cancelled)

15 Claim 18 (Currently Amended): The add-on card of claim [[17]] 13 wherein the power-managing circuit comprises:

20 a power-storage unit electrically connected to the DC power terminal for storing the power supplied from the first DC and providing the power to the second DC; and a bypass circuit having an input terminal electrically connected to the power-storage unit and an output terminal electrically connected to the DC power terminal and the operating circuit; when the operating circuit operates in a low power consumption mode and the first DC supplies the power, the bypass circuit prevent the current flowing from the DC power terminal via the output terminal and the input terminal into the power-storage unit; and when the operating circuit operates in a high power consumption mode, the bypass circuit inputs the power supplied from the power-storage unit via the 25

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input terminal and outputs into the operating circuit via the output terminal.

Claim 19 (Original): The add-on card of claim 18 wherein the bypass circuit comprises a metal-oxide semiconductor (MOS) transistor, a source of the transistor being electrically connected to the input terminal and a drain of the transistor being electrically connected to the output terminal; when the operating circuit operates in a low power consumption mode, a reverse bias between the source and the drain of the transistor prevents the current from flowing from the DC power terminal via the bypass circuit into the power-storage unit; and when the operating circuit operates in a high power consumption mode, a forward bias between the source and the drain of the transistor transmits the power of the power-storage unit.

Claim 20 (Original): The add-on card of claim 18 further comprising a resistor electrically connected to the DC power terminal and the power-storage unit preventing too much current flowing into the power-storage unit leaving insufficient current for the RF circuit.

Claim 21 (Currently Amended): The add-on card of claim 18 wherein the power-storage unit is a capacitor.

Claim 22 (Original): The add-on card of claim 18 wherein the power-storage unit is a rechargeable battery.

Claim 23 (Original): The add-on card of claim 13 wherein the interface connector conforms to a compact flash (CF) card specification.